PY H673.2 D449e

A DESCRIPTION AND ANALYSIS OF EARLY POTTERY TYPES IN THE LOWER SUSQUEHANNA RIVER VALLEY OF PENNSYLVANIA

STATE LIBRARY OF PENNSYLVANIA
docs,pa PY H673.2 D449e
Description and analysis of ea
Feb. (1978)
0 0001 00111749 6

by Ira F. Smith III

03-59-724-2

PENNSYLVANIA HISTORICAL AND M
WILLIAM PENN MEMOR

DATE DUE

FEB 16 1993

DEMCO NO. 38-298

A DESCRIPTION AND ANALYSIS OF
EARLY POTTERY TYPES
IN THE LOWER SUSQUEHANNA RIVER VALLEY OF PENNSYLVANIA

by
Ira F. Smith III
Field Archaeologist and Associate Curator
Pennsylvania Historical and Museum Commission

* * * * * * * * * * * *

Pennsylvania Historical and Museum Commission
William Penn Memorial Museum
Harrisburg, Pennsylvania

February, 1978

PREFACE

This article reflects thinking of the 1968-1969 era as reported by the author in a thesis entitled "Early and Middle Woodland Cultures in the Susquehanna Valley" (Smith 1970a) and in various papers presented before the Eastern States Archaeological Federation (1970), the Middle Atlantic Archaeological Conference (1971), and the Maryland Archaeological Society, Inc. (1971). The original manuscript was accepted in 1974 for publication in the Archaeological Studies Series of the Maryland Geological Survey, but because of editorial limitations, was never printed. This report represents an alternative approach to making the information available.

The descriptions and the proposed ceramic sequence remain essentially intact although supplemented by new finds and radiocarbon dates from surrounding areas. Net impressed pottery types have more recently been refined to include several distinct complexes and other changes may be forthcoming. Accokeek Cordmarked, for example, may be moved to an earlier chronological position necessitating a slight shifting in the author's suggested line of demarcation between the Early and Middle Woodland periods.

Digitized by the Internet Archive
in 2016 with funding from
This project is made possible by a grant from the Institute of Museum and Library Services as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries

https://archive.org/details/descriptionanaly00smit

ACKNOWLEDGMENTS

The author would like to acknowledge the following amateur archaeologists who assisted in this project and whose materials are illustrated in this report: Leslie and Harry Kunkle of Marysville, Frank Stoerzinger of Mount Holly Springs, George Hepler of Dauphin, Joseph Wallace of Craley, Elwood Walbert of Ephrata, George Boyd of York, and John Carter of Treverton. An expression of appreciation is also extended to Paul Cresthull of Abingdon, Maryland for his help and cooperation.

The William Penn Memorial Museum in Harrisburg, Pennsylvania graciously provided access to its vast holdings of archaeological materials. The Farver, Stoeber, Deisher, Hoke, Kent, Stone, and Haldeman-O'Conner collections were examined for pertinent information.

TABLE OF CONTENTS

PAGE

PREFACE ii

ACKNOWLEDGMENTS iii

ABSTRACT iv

LIST OF FIGURES vi

A DESCRIPTION AND ANALYSIS OF EARLY POTTERY TYPES IN THE LOWER SUSQUEHANNA RIVER VALLEY OF PENNSYLVANIA

Introduction. 1
Late Woodland Pottery 5
Early and Middle Woodland Pottery 7

Marcey Creek Plain 10

Variation A 13
Variation B 14

Seldon Island Cordmarked 14
Mica Schist-tempered Exterior Cordmarked 15
Light Plain 16
Vinette 1 18
Bare Island Cordmarked 19
Pope's Creek Net Impressed 22
Susquehanna Net or Fabric Impressed 23
Susquehanna Cordmarked. 26
Accokeek Cordmarked 27
Mockley Net Impressed 30
Advanced Interior-Exterior Cordmarked 33
Mica Schist-tempered Exterior Cordmarked: Advanced 34
Woodland Cordmarked 35

Summary and Conclusions 36
Bibliography 54

A DESCRIPTION AND ANALYSIS OF EARLY POTTERY TYPES IN THE LOWER SUSQUEHANNA RIVER VALLEY OF PENNSYLVANIA

Introduction

The examination of early pottery in the Lower Susquehanna Valley was one aspect of an intensive survey of Early and Middle Woodland cultures conducted by the Pennsylvania Historical and Museum Commission in 1969 (Smith 1970a).

The scope of the overall project involved a time span of from 1500 to 2000 years, while the geographic range incorporated the entire Susquehanna River drainage system in Pennsylvania. For convenience of survey, analysis, and classification, the research area was divided into five work regions that corresponded closely with various subdrainage systems (Fig. 1). These regions were defined as follows:

The Lower Susquehanna region, which includes Lancaster, Lebanon, Dauphin, Cumberland, Adams, and York Counties, is drained primarily by the Pequea, Conestoga, Swatara, Conodoquinet, Yellow Breeches, Conewago, and Codorus Creeks.

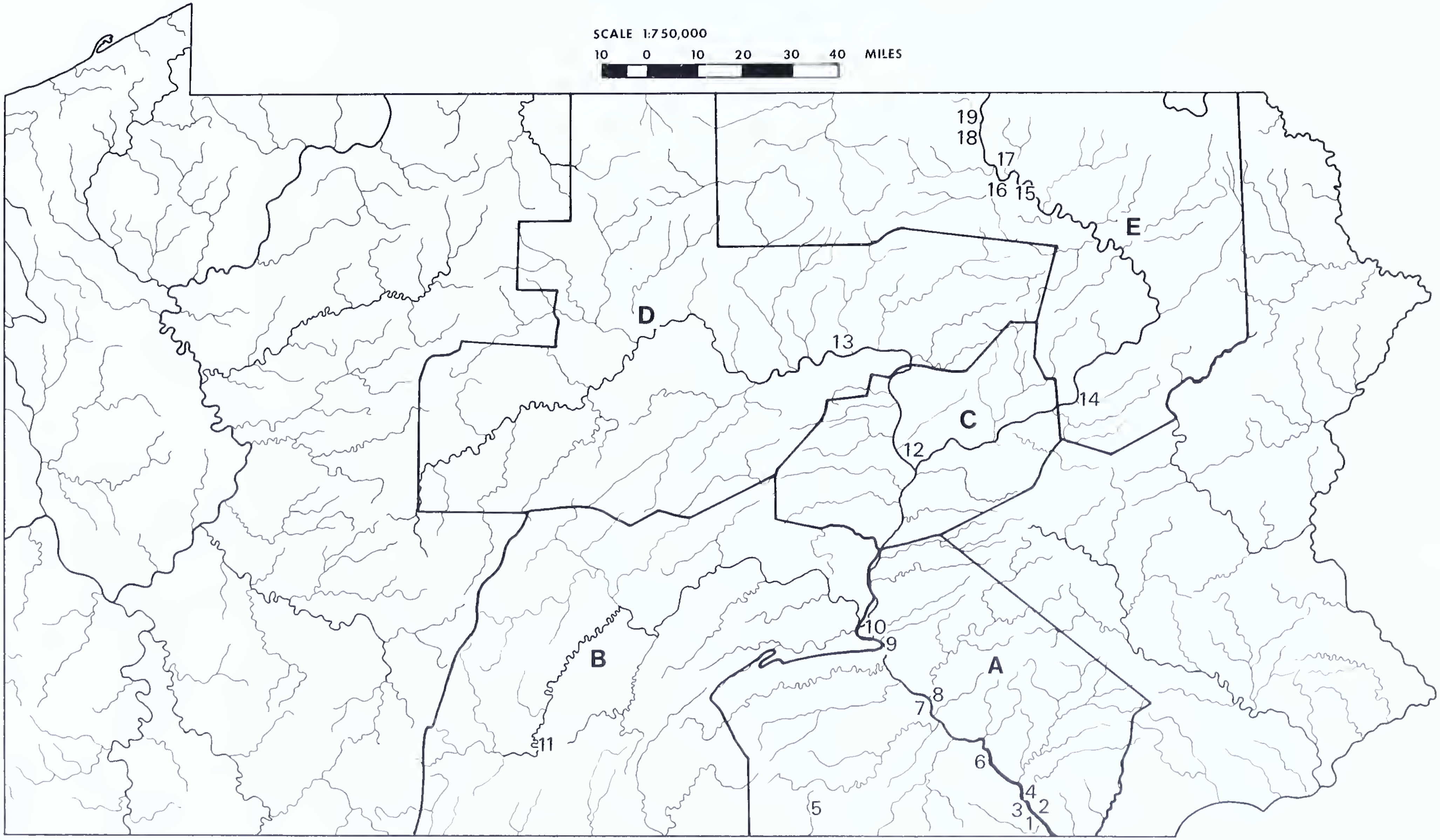
The Juniata region, which includes Perry, Juniata, Mifflin, Bedford, Blair, and Huntingdon Counties, is drained primarily by the Tuscarora, Augwick, and Shermans Creeks, and the Frankstown and Raystown Branches of the Juniata River. Franklin and Fulton Counties, while actually part of the Upper Potomac drainage of Maryland, are also incorporated into this region.

The Middle Susquehanna region, which includes Northumberland, Columbia, Montour, Union, and Snyder Counties, is drained primarily by Middle, Penns, and Fishing Creeks, and the two branches of the Susquehanna River.

Figure 1. Early and Middle Woodland Sites and Drainage Subregions of the Susquehanna Valley. A, Lower Susquehanna; B, Juniata; C, Middle Susquehanna; D, West Branch Susquehanna; E, North Branch Susquehanna.

1 Bare Island
    Kent-Hally
    Stoerzinger
2 Muddy Run Rock Shelter
3 Councilman's Run Rock Shelter
4 Erb Rock Shelter
5 Heck Rock Shelter
6 Oscar Leibhart
7 Three Mile Island
8 Light
9 Tower
10 Haldeman's Island
11 Coon Rock Shelter
12 Packer's Island
13 Daugherty's Run
14 Wapwallopen
15 Azilum
16 Sick
17 Wilson
18 Queen Esther's Flats
19 Cove

SELECTED RIVERS AND STREAMS OF PENNSYLVANIA



The West Branch Susquehanna region, which includes Lycoming, Centre, Clinton, Clearfield, Cameron, Sullivan, and Potter Counties, is drained primarily by the Loyalsock, Lycoming, Pine, Bald Eagle, Moshannon, Kettle, and Sinnemahoning Creeks.

Finally, the North Branch Susquehanna region, which includes Luzerne, Lackawanna, Wyoming, Susquehanna, Bradford, and Tioga Counties, is drained primarily by the Lackawanna River, and the Tunkannock, Towanda, and Sugar Creeks.

Early and Middle Woodland ceramics were described and classified on a regional basis; stone tools and ornaments from excavated deposits were typed and identified; diagnostic objects of known Early and Middle Woodland association--blocked-end tubular pipes, platform pipes, birdstones, banded slate gorgets, "exotic" caches, Adena and Hopewell-like artifacts of Flint Ridge chalcedony, etc.--were identified in the collections and recorded; and rock shelters, floodplain sites, cremation sites, and semisubterranean structures of Early or Middle Woodland affinity were discussed. The data was then interpreted and patterns of inter- and intra-regional interaction and regional chronology were established.

Pottery was the one category of artifact that permitted the most reliable determination of time limits for the project. By definition, its invention or introduction is usually considered to mark the initial phase of the Early Woodland period (Kent, Smith, and McCann 1971: 195-201). Since it is possible to identify Late Woodland pottery types in the Susquehanna Valley, it is also possible to tentatively establish the other limit.

Late Woodland types have been well-defined by other investigators and are discussed only briefly in the next section. Once these types were recognized and removed from the private and institutional collections examined in the

survey, the remaining pottery was considered unknown and an attempt was made to classify it and compare it with surrounding areas.

New type names are introduced sparingly. If the type is identical or very similar to one already discussed in the literature, the established nomenclature is used. On the other hand, if the type has not been previously described, and if it appears that the sample size can be enlarged, a new type name is assigned. If the sample is small, and it is uncertain whether additional specimens can be added in the near future, no new type name is introduced and the samples are referred to only by descriptive terminology.

There are various limitations to this study. First, the project involves a small sample, but one which represents a large portion of the known early pottery for the Lower Susquehanna region. Second, certain descriptions are weak because of the difficulty inherent in analyzing a sample that is never all together in one place at one time. Third, comparisons to types from surrounding areas are made through published descriptions and not generally by actual inspection. Finally, there is a need for larger excavated samples in the Susquehanna Valley, especially stratigraphic samples, in order to reaffirm the present type descriptions and to establish more valid positioning of these types.

Late Woodland Pottery

There are four general papers which attempt to summarize certain pottery types in the Susquehanna River Valley of eastern Pennsylvania. Two of these, entitled "Pottery Types of the Lower Susquehanna Valley" and "Pottery of the West Branch Valley of the Susquehanna River," were papers presented by John Witthoft at various sessions of the Eastern States Archaeological Federation (Witthoft 1950, 1951); another is an unpublished manuscript entitled "Ceramic Sequences in Eastern Pennsylvania" (Witthoft n.d.); the last is an article on the "Pottery Types of the Upper Susquehanna" by Charles

Lucy (1959).

The most recent type of pottery found anywhere on the Susquehanna, and one confined primarily to the Lower Susquehanna region, is shell-tempered Strickler Cordmarked (Kinsey 1959a: 88-90). This type was most popular in the period from 1640 to 1675 and represents a degenerate form of Susquehannock pottery. It was preceded in the Lower Susquehanna by two other shell-tempered, incised-collared types of Susquehannock pottery; Washington Boro Incised, 1600-1650 (Kinsey 1959a: 78-86) and Schultz Incised, 1550-1620 (Kinsey 1959a: 68-77). The first of these is confined to the Lower Susquehanna and is derived from Schultz Incised, while the latter is scattered throughout the watershed (Huner 1967: 483-486; Lucy 1959: 36-37; Smith 1970b, 1976).

Funk Incised, a grit-tempered, incised-collared form, is one of the last of the Shenks Ferry types and as such may represent a fusion of Schultz-Susquehannock ideas with those of the indigenous culture. It is primarily confined to the Lower Susquehanna where it is a fairly common type (Kinsey and Graybill 1971). A number of other precontact varieties of grit-tempered Shenks Ferry pottery are found throughout the Susquehanna basin, being particularly common in the Lower Susquehanna region (Witthoft and Farver 1952, Heisey and Witmer 1964, Heisey 1971), the West Branch region (Witthoft 1954), and less common in the Juniata (Huner 1967: 481-482) and on the North Branch (Lucy 1959: 36).

Monongahela pottery, the shell-tempered, usually noncollared pottery which is characteristic of the late prehistoric period in certain parts of western Pennsylvania (Mayer-Oaks 1955: 196-200), appears about this time and is most prevalent in Bedford County, Juniata region. Sherds have been found at several sites in other parts of the Susquehanna such as the Sheep Rock Shelter in Huntingdon County, the Eschelman and Conoy sites in Lancaster County, and the Parker site in Luzerne County.

In northern Pennsylvania, confined mainly to Bradford County, Proto-Susquehannock, a grit- or sand-tempered, incised-collared form, is apparently the evolutionary forerunner of Schultz Incised (Lucy 1959: 36). This type may have evolved from Richmond Mills Incised and is preceded only on the North Branch by numerous varieties of Iroquoian and Oak Hill pottery. These latter complexes, varieties and variations of which are found in the Wyoming Valley near Wilkes-Barre, Luzerne County and considered part of a Wyoming Valley culture, are not found in any quantity south of that valley (Smith 1973).

Varieties of Owasco pottery are common to the North Branch (Lucy 1959: 32-34; Ritchie and MacNeish 1949: 107-119) and have been found as far south as the Sheep Rock Shelter. It is surprising, however, to find their almost complete absence, together with that of prehistoric Iroquoian pottery, on the West Branch. Shenks Ferry apparently takes the place of Owasco here as it does in most of the Susquehanna, except on the Upper Juniata where Monongahela occupies this late prehistoric position.

The last ceramic complex, quartz or chert-tempered Clemsons Island, is slightly earlier than and eventually contemporary with Owasco, shows many similarities to Owasco, and is widely distributed throughout the Susquehanna. It is most common on the North and West Branches, less common in the Upper Juniata region where Page Cordmarked and closely related types may take its place (Witthoft 1951: 8), and least common in the Lower Susquehanna.

Early and Middle Woodland Pottery

More pottery has been recorded for the Lower Susquehanna region than any other region. More professional excavations, testings, and surveys have been undertaken in this area, and amateur archaeologists have delighted in prospecting its many habitable islands (Fig. 2).

Figure 2. General View of a Portion of the Lower Susquehanna Valley.

This is a view of the river below the Holtwood Dam taken from Bare Island looking north to Piney Island.

Professional excavations at the Heck Rock Shelter, Adams County (Kinsey 1958), the Erb Rock Shelter, Lancaster County (Kent and Packard 1969), and the Three Mile Island site, Dauphin County (Smith 1977) have produced appreciable amounts of early pottery. Numerous small digs producing early pottery have also been conducted by amateur archaeologists at the Oscar Leibhart site, Muddy Run Rock Shelter, Councilman's Run Rock Shelter, and Bare Island, to mention a few.

Fourteen distinct pottery types and numerous varieties are described for the Lower Susquehanna Valley. Less than half of these have been discussed in the literature for surrounding states; three have been described for the first time, but because of the small sample size have received no type name; and four new types have been designated: Light Plain, Bare Island Cordmarked, Susquehanna Net or Fabric Impressed, and Susquehanna Cordmarked.

Marcey Creek Plain (Figs. 3a-e, 6a)

Type. With consideration for minor variation, this type conforms to the type "Marcey Creek Plain" (Manson 1948: 225) or what Witthoft (1950: 11) has called "Washington Steatite-Tempered."

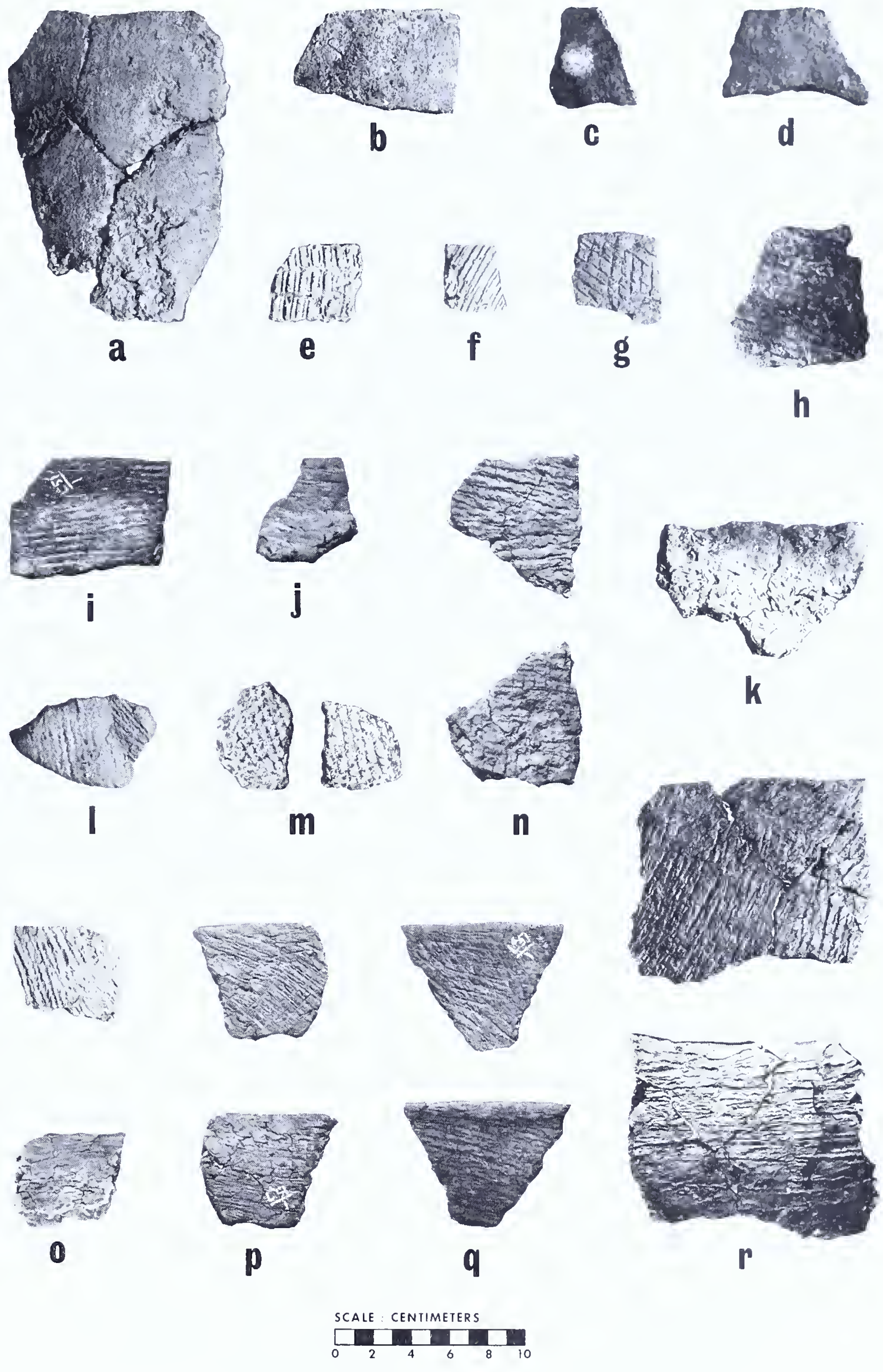
Method of Manufacture. Several descriptions suggest that the type was made by coiling. However, most of the Susquehanna Valley specimens appear to have been hand-modeled. Evans (1955: 55) describes the type as modeled, and Stephenson and others (1963: 91) note that a few sherds were modeled.

Temper. Temper usually consists of large particles of crushed steatite ranging from 2 to 6 mm in diameter and making up approximately 40 to 50 percent of the paste. The plastic is also saturated with tiny flecks of highly crushed steatite.

Texture. When the temper is large and dense, the pottery is soft, friable, and not well-compacted. When the particles are small, the sherds appear more compact. A soapy feel is one

Figure 3. Early Woodland Pottery.

a, e, Marcey Creek Plain; b, Marcey Creek Plain Variety A; c-d, Marcey Creek Plain Variety B; f-h, Seldon Island Cordmarked; i, j, l, Mica Schist-tempered Exterior Cordmarked; k, Mica Schist-tempered Plain; m, Light Plain; n-o, Mica Schist-tempered Interior-Exterior Cordmarked; p-r, Vinette 1.


a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
SCALE : CENTIMETERS
0
2
4
6
8
10

of the diagnostic attributes of this type.

Color. Various shades of tans and grays are the most common exterior colors, with browns and reddish-browns constituting a minority. The interior usually has the same color as both the core and the exterior, with gray becoming more conspicuous.

Surface Treatment. Both the interior and the exterior are unevenly smoothed by hand (Stephenson, Ferguson, and Ferguson 1963: 92). The degree to which these surfaces may be lumpy or wavy depends largely upon the size and amount of temper. The exteriors of basal sherds are characteristically impressed with matting or wicker work (Fig. 3e).

Vessel Form. The vessel form is better described and illustrated by Stephenson and others (1963: 90, 92). Lips are generally rounded, rims straight, walls straight, bodies oval or cylindrical, and bases flat with an occasional pronounced heel. Vessel thickness is about 11 to 15 mm. Lug handles are sometimes attached to the sides of the container.

Decoration. Decoration, which is usually absent, occasionally consists of nicks applied to the lip. Lip nicking is reminiscent of that found on steatite vessels where it is a more common decorative feature.

Sample Size. Stoerzinger Collection--9 rimsherds, 14 bodysherds, 2 basal sherds (Fourteen of these sherds fit together into one restorable pot with mat impressed bottom and basal heel); Kunkle Collection--2 rimsherds; Miscellaneous Collections--2 rimsherds, 10 bodysherds.

Variation. Ignoring the fact that one of the steatite-tempered pottery types that will be described is cordmarked, there is also some variation within the steatite-tempered pottery that is plain.

> Variation A (Fig. 3b). This variety has essentially the same characteristics as the type except that (1) steatite temper is less than 2 mm in diameter, is more evenly distributed, and is mixed with equal amounts of either sand (Kunkle

Collection--3 rimsherds) or mica schist (Stoerzinger Collection --one restored pot described and illustrated by Kinsey 1959: 127, and (2) the sherds are thinner and more compact even though temper still represents 50 percent of the paste. The high percentage of sand would seem to indicate that it had been intentionally mixed with the steatite rather than being a natural inclusion within the plastic. The schist may occur accidentally.

Variation B (Fig. 3c-d). Generally the differences are (1) more conspicuous coil breaks, (2) predominance of red and orange colors, (3) vessels thin, hard, and well-made (4) temper more schist-like with particles less than 1.5 mm in diameter and density less than 25 percent, and (5) the absence of a soapy texture. These sherds resemble in certain respects the type described as Seldon Island Cordmarked (Stoerzinger Collection--2 rimsherds; Kunkle Collection--3 rimsherds).

Seldon Island Cordmarked (Fig. 3f-h)

Type. This type conforms in most ways to the type "Seldon Island Cordmarked" already described in the literature (Slattery 1946: 263-264).

Method of Manufacture. Coil breaks are more conspicuous than in the previous type, although sherds most closely resembling Marcey Creek Plain appear to have been hand-modeled.

Temper. According to Evans (1955: 56), temper is composed of "crushed steatite ranging in size from fine powder to 1 cm. . ." Slattery indicates that his sample is tempered with generous amounts of steatite fragments from 1 to 4 mm in diameter (Slattery 1946: 263). The Lower Susquehanna sherds often contain small amounts of sand mixed with the steatite.

Texture. Sherds are usually not characterized by the soapy texture that is common to Marcey Creek Plain. The fact that temper particles are small, evenly distributed throughout the plastic, and mixed with sand probably accounts for this. The sherds with sand are usually thinner and somewhat better made.

Color. Reds and reddish-browns are common interior and exterior colors. Gray occurs occasionally, and then only in sherds exhibiting Marcey Creek Plain charactertistics. Both Slattery and Evans note the presence of rusty or light brown colors in their respective samples.

Surface Treatment. Cord roughening occurs randomly over the exterior surface. In most cases the strands are spaced about 4 mm apart. Net impressions, according to Slattery (1946: 264), occur sporadically. The interior is smooth and somewhat irregular.

Vessel Form. Various descriptions and one of the few restored vessels of this type indicate that the form is like that of Marcey Creek Plain, and that the flat bases are net or mat-impressed. Lewis (1972), however, finds evidence on the Delmarva Peninsula for rudimentary conoidal bases.

Decoration. Unknown

Sample Size. WPMM, Kent Collection--1 rimsherd, 15 bodysherds; WPMM, Haldeman-O'Conner Collection--1 rimsherd; Stoerzinger Collection--12 rimsherds.

Variation. In addition to the sample mentioned above, Stoerzinger has about 100 sherds from a single vessel, which conform closely to the type description except that about 25 percent of them show faint interior cordmarking. This vessel appears to contain charactertistics of both Seldon Island Cordmarked and Bare Island Cordmarked (to be discussed).

Mica Schist-tempered Exterior Cordmarked (Fig. 3i, j, l)

Type. There are several varieties of mica schist-tempered pottery. The principal one, described here because it is the variety for which the largest sample is available, is

essentially mica schist-tempered, exterior cordmarked. The remaining two varieties differ in surface treatment and are mentioned only briefly.

Method of Manufacture. Coiled and paddle malleated. Coil breaks are not a conspicuous feature.

Temper. Temper is composed of large particles of mica schist that average 5 to 7 mm in diameter, but vary from 3 to 13 mm in diameter. Temper, because of its great size, appears to constitute a large proportion of the paste. Actually the density, about 30 to 40 percent, is less than that for Marcey Creek Plain. The massive size of the particles is a diagnostic feature.

Texture. The pottery is coarse, poorly compacted, and somewhat friable.

Color. Exterior color is light tan to gray with darker, almost black areas toward the top of the rim. The interior is often black and characteristically darker than the exterior. The core exhibits no distinctive color.

Surface Treatment. The exterior is covered with widely spaced, poorly differentiated, horizontal cord impressions. The interior is plain and irregular because of the large temper particles protruding from the surface. One variety exhibits both interior and exterior cordmarking, while the surfaces on the other variety are plain, crude, and irregular (Fig. 3k, n. o).

Vessel Form. Lips are characteristically pointed, rims straight, body probably straight-sided, and base probably flat. Massive sherds up to 10 mm in thickness are common.

Decoration. None

Sample Size. WPMM, Stone Collection--7 rimsherds, 14 bodysherds; Stoerzinger Collection--13 rimsherds, 1 bodysherd; Kunkle Collection--3 rimsherds, 1 bodysherd (all plain).

Light Plain (Figs. 3m. 6b)

Type. This pottery has a wide distribution throughout

the Lower Susquehanna but has not as yet been cited in the literature. Its closest relative seems to be the type "Ware Plain" described from the Ware site, Salem County, New Jersey (McCann 1950: 316-317). Considering the variations mentioned below, it is basically a flat-bottomed, straight-sided, gneiss-tempered pottery.

Method of Manufacture. The method of manufacture is not certain. Much of the pottery was probably modeled like Marcey Creek Plain. Some pots appear to have been fashioned by coiling, the base being modeled from a solid lump of clay. Coil breaks are not a conspicuous feature.

Temper. The pottery is manufactured from local clays mixed with crushed rock other than steatite. In this case, the temper is composed of irregular-shaped, protruding particles of gneiss, with occasional fragments of biotite mica. The high density of temper gives the sherds a distinctive speckled appearance.

Texture. The pottery has a gritty texture, feels rough and dirty when held in the hand, but not particulary sandy.

Color. Tans, buffs, and occasional light reds are common exterior colors, while the interiors range from buff to dark gray and black.

Surface Treatment. The exterior is unevenly smoothed; the interior is always smooth and sometimes wiped. If larger samples were available, two additional varieties could be differentiated. Certain sherds conform to type criteria except that they exhibit both interior and exterior cordmarking. Others, especially from the Three Mile Island site, exhibit faint exterior cordmarking on an otherwise plain vessel. Therefore, although the type discussed here is specifically an interior-exterior plain pottery, there exists both an exterior cord-marked variety and interior-exterior cordmarked variety.

Vessel Form. Lips are thinned and rounded, rims straight, and bases flat with mat or wicker impressions (Fig. 3m).

Decoration. None

Sample Size. WPMM Collection--one restored pot and 200 bodysherds, about 50 percent plain and 50 percent exterior cordmarked; Stoerzinger Collection--2 basal sherds.

Vinette 1. (Fig. 3p-r)

Type. Depending upon the area where it is found, and the cultural influences acting upon it, this type is similar if not identical to Vinette 1 (Ritchie and MacNeish 1949: 100). It is essentially a quartz-tempered, interior-exterior cordmarked pottery.

Method of Manufacture. Coil made, although coil breaks are not necessary a conspicuous feature.

Temper. Crushed clear or milky quartz is the most common tempering material. Chert (Kinsey 1958: 5) and other kinds of pulverized rock are also employed. The size of the particles range from 2 to 8 mm with the average size about 2 to 3 mm in diamater. Temper occurs in high proportion to the plastic.

Texture. The sherds are generally coarse, friable, and often feel gritty to the touch. In cross-section they appear "very porous and often contorted" (Ritchie and MacNeish 1949: 100).

Color. Interior and exterior colors are predominantly dark browns and blacks, with an occasional buff or still lighter color. The interior is usually a shade darker than the exterior.

Surface Treatment. The entire exterior surface of the vessel is covered with relatively distinct cord marks "running in various directions although they tend to be vertical" (Ritchie 1965: 193). Oblique cordmarking seems to be characteristic, while an occasional fabric impression does occur. The interior is distinctly cordmarked horizontally to the lip.

Vessel Form. Vessel form corresponds to Ritchie's description except that in addition to smooth, rounded, or pointed lips there are several flattened and cordmarked lips.

According to Ritchie and MacNeish (1949: 100), rims are straight, lips rounded and sometimes pointed, bodies elongated, and bases conoidal.

Decoration. None

Sample Size. The sample is extremely small, but adding the various published examples, we arrive at an improved count. Kunkle Collection--4 rimsherds, 2 bodysherds, WPMM, Kent Collection--6 bodysherds; WPMM Stone Collection--5 rimsherds, 5 bodysherds.

Bare Island Cordmarked. (Fig. 4a-c, e)

Type. This type, which has not been described in the literature, is a steatite-tempered, interior-exterior cordmarked pottery.

Method of Manufacture. Coil made and paddle malleated. Sherds fractured along coil junctures are common.

Temper. Temper consists of crushed steatite averaging less than 2 mm in diameter. Occasionally tiny fragments of crushed quartz are intentionally mixed with the temper, but usually the silica fragments are unintentional inclusions in the plastic where they occur in combination with large amounts of minute flecks of steatite. It is this latter characteristic which gives the sherds a faint glittering appearance. Temper makes up less than 30 percent of the paste.

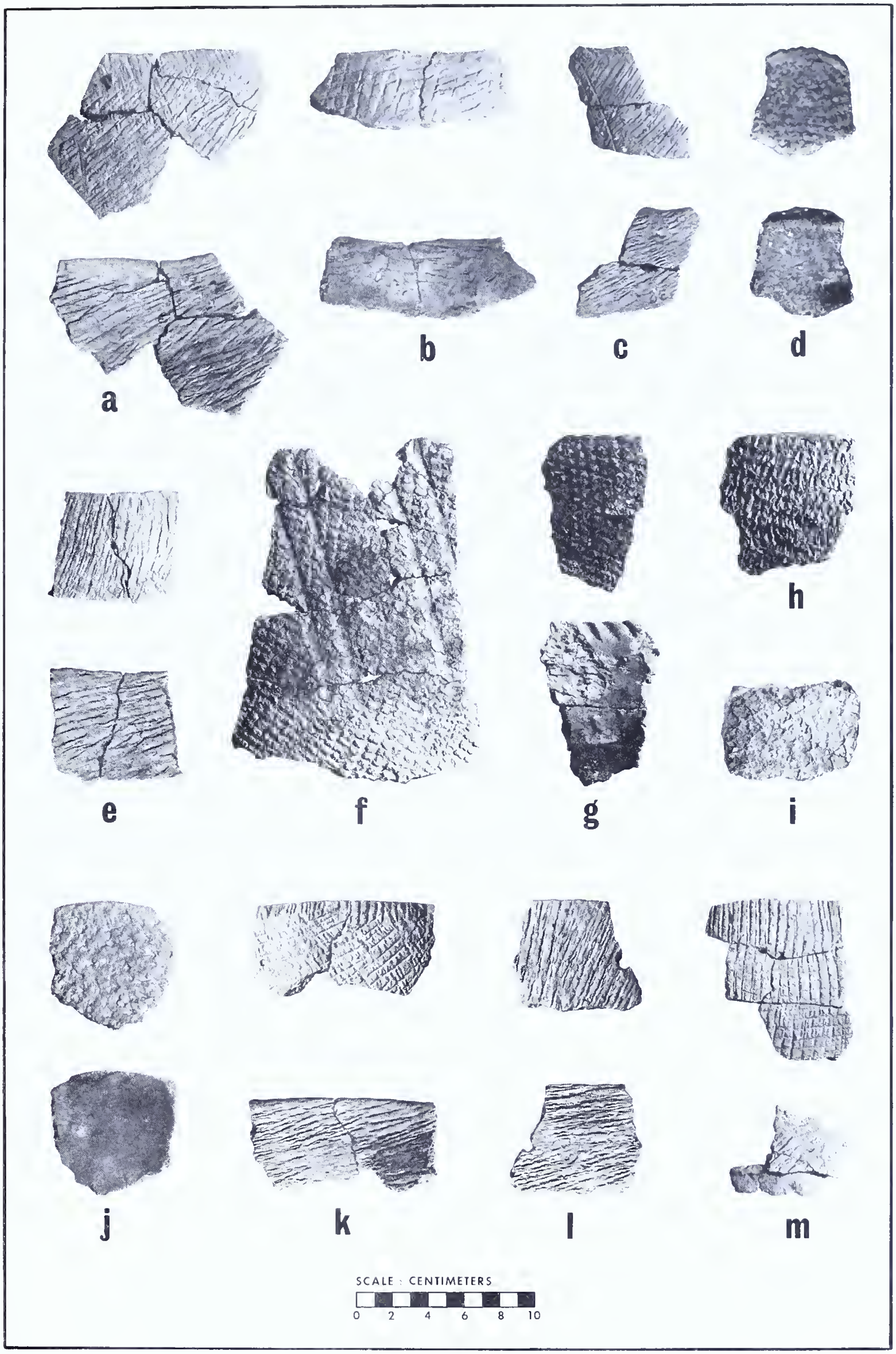
Texture. The pottery is more compact than either the Marcey Creek Plain or Vinette 1 types. It has a characteristic greasy or soapy feel which is distinctive for interior-exterior cordmarked pottery.

Color. The exterior is predominantly reddish-orange, but various shades of brown and an occasional black do occur. The interior is usually the same color as the exterior, but often a shade or so darker. The core color is a gradual blending of interior and exterior colors.

Surface Treatment. The exterior surfaces in the vicinity of the rim are cordmarked vertically or slightly obliquely

Figure 4. Early and Middle Woodland Pottery.

a-c, e, Bare Island Cordmarked; d, Pope's Creek Net Impressed; f-j, Susquehanna Net or Fabric Impressed; k-m, Susquehanna Cordmarked.


a
b
c
d
e
f
g
h
i
j
k
l
m
SCALE : CENTIMETERS
0 2 4 6 8 10

to the lip. The cordmarking consists of widely spaced strands that may be distinct and deeply impressed or faint and partially obliterated. There is a tendency for many sherds to exhibit overlapping cordmarking to form a checked pattern. The interior surfaces are cordmarked horizontally or slightly obliquely to the lip. Sometimes the cordmarking is distinct, rarely will it overlap as on the exterior, while at other times it has been partially removed.

Vessel Form. Lips are rounded and intentionally smoothed. The rim is straight although, depending upon which side received a thinning treatment, there is an illusion of either interior or exterior eversion. The body and basal shapes are unknown, but probably not flat. Thickness averages 4 mm.

Decoration. Several sherds show incising on the exterior surface (Fig. 4c). It is interesting to note that these particular specimens also have a high percentage of sand mixed with the statite. Incising, however, is not an important characteristic of the type.

Sample Size. Stoerzinger Collection--34 rimsherds, 9 bodysherds; Kunkle Collection--5 rimsherds; WPMM, Kent Collection--1 rimsherd, 6 bodysherds.

Pope's Creek Net Impressed (Fig. 4d)

Type. This type conforms in practically every respect to the type "Pope's Creek Net Impressed" (Stephenson, Ferguson, and Ferguson 1963: 94-96). Therefore, only variations from the principal type will be mentioned, while abbreviated quotations from the original type description will be presented.

Method of Manufacture. "Coiling and paddle malleating." "Rarely is lack of welding noticeable but breakage along coil lines is usual."

Temper. "Temper is composed of medium to coarse sand representing 50 to 70 percent of the paste." "Inclusions within the paste . . . are composed of coarse, water-smoothed quartz pebbles; angular, crushed quartz; or other lithic

material."

Texture. "Texture is coarse, rough, and extremely friable."

Color. "Exterior surface color ranges from dark browns, grays, buffs, and tans to yellowish-orange, and reds. Dark reddish-browns and tans are dominant." "Interior surfaces are often the same as exteriors but usually are darker and often black."

Surface Treatment. "Exterior surfaces are roughened all over with various sorts of loose, open, net impressions." Interior surfaces are usually scored or combed with short, deep, patterened strokes." Geometric interior scoring is not apparent in the sample from the Lower Susquehanna.

Vessel Form. Lips are "rounded, flattened, or slightly wedge-shaped", rims "vertical to slightly everted", body "conical", base "conical with 80 percent being extremely pointed and 10 percent tending toward semi-conical." The thickness "ranges from 6 to 18 mm."

Decoration. Occasionally conical holes are punched vertically into the lip.

Sample Size. William Penn Memorial Museum--80 bodysherds.

Susquehanna Net or Fabric Impressed (Fig. 4f-j)

Type. The type discussed here most closely resembles types of the Albemarle series (Evans 1955: 41-43), Prince George series (Evans 1955: 61-62), or Bushkill series (Kinsey 1972). It is essentially a quartz-tempered net or fabric-impressed pottery. There is considerable variation in the kind and amount of temper, but all sherds have in common quartz temper of one form or another, plain interiors, and net or fabric-roughened exteriors.

Method of Manufacture. Coiling and paddle malleating. Coil breaks are a conspicuous feature in the sample from Packer's Island and are common in the thinner sherds from the Lower Susquehanna.

Temper. The temper may be composed of either crushed fragments of clear quartz, crushed fragments of milky quartz, rounded fragments of milky quartz, or any combination of these. The angularity of the temper causes light reflections that create the sparkling appearance characteristic of many of the sherds. The size of the particles range from 1 to 5 mm in diameter, with the average size being approximately 2 to 3 mm. Temper makes up less than 30 percent of the paste.

Texture. Sherds are not sandy to the touch. Most are medium compact and fairly well made, although an occasional piece may be somewhat friable.

Color. Theexterior colors tend to be reds, browns, and combinations of reds and browns, with black occurring occasionally. The interiors are a shade or two darker, with blacks and grays more common.

Surface Treatment. The exterior surfaces are roughened all over with various kinds of loose, open mesh net impressions, or in a lesser number of cases with various kinds of fabric (Fig. 4h). Generally the impressions are deep, distinct, and not confusing or overlapping. The interior surfaces are smoothed.

Vessel Form. Lips are either wedge-shaped or rounded and smoothed, rims straight to slightly bowed, with body and basal shapes unknown. The thickness averages 6 to 8 mm. Several specimens are unique. The lip is smooth, slightly flattened, and faintly scalloped. The rim curves outward, the neck contracts, and the body expands outward and is globular.

Decoration. Long oblique lines produced by wiping the finger over wet, previously net-impressed clay occur on the exterior (Fig. 4f). Paddle edge or stick depressions are occasionally found on the lip interior (Fig. 4g). These decorations, however, are not characteristic of the type.

Sample Size. Stoerzinger Collection--1 rimsherd, 8 bodysherds (4 are fabric-impressed); Kunkle Collection--3 rimsherds, 7 bodysherds; WPMM, Kent Collection--17 bodysherds; WPMM, Stone Collection--1 rimsherd, 4 bodysherds; WPMM, Haldeman-O'Conner Collection--1 rimsherd, 2 bodysherds (2 are fabric-impressed); Carter Collection--39 bodysherds.

Discussion. Although similar to Pope's Creek Net Impressed, this type differs in temper, texture, and degree of interior scouring. It would appear to be later and more refined than Pope's Creek. There are some interesting similarities between Pope's Creek and the decorated sherds of this type. For example, Stephenson (1963: 96) reports that "about 5 percent of the (Pope's Creek) rims have 2 to 5 horizontal, broad-trailed incisions that appear to be finger marks trailed over the damp, plastic clay." He also reports "four percent of the lips are nicked or punctated along the top" (Ibid: 96).

The types which appear to be most like Susquehanna Net or Fabric Impressed are "Albermarle Net Impressed" (Evans 1955: 43) and/or "Pottery Hill Net Impressed and Roughened" (Evans 1955: 61-62). Stephenson and others (1963: 102) report rare incised decoration on some of the Accokeek Creek Albermarle specimens. He also illustrates fabric-impressed examples that are identical to those in the Lower Susquehanna (Evans 1955, Pl. 14a, c).

Incised decoration, although not a common charactertistic on early Susquehanna Valley pottery, is not completely lacking. Experiments in incising occur throughout time starting with the steatite pot. We have seen examples of it on a few of the Bare Island Cordmarked sherds; it is reported on several of the Accokeek Cordmarked sherds from the Erb Rock Shelter (Kent and Packard 1969: 8); it is also found on Half Moon Cordmarked pottery in western Pennsylvania (Mayer-Oakes 1955: 189); Point Peninsula Plain in New York (Ritchie and MacNeish 1949: 103); and it is common on many of the Abbott Farm types in New Jersey.

Susquehanna Cordmarked (Figs. 4k-m, 6c)

Type. This type is a sand-tempered, interior-exterior cordmarked pottery. There is considerable variation in color, clarity of cordmarking, and type of impurities within the plastic. Nevertheless, the sherds easily fall into a single type based on their sandy temper, general vessel form, and interior-exterior cordmarking.

Method of Manufacture. Coil made and paddle malleated. Coil breaks occur on approximately one-half of the specimens, but should not be considered a diagnostic feature. Malleating was well done and angular breaks across coil welds are common.

Temper. The area in which this type is popular is underlain by what geologists call Wissahickon and Peters Creek schists. Like the pegmatites outcropping farther to the east, the schists contain various mineral constituents. Fluvial erosion breaks down the outcrops and redeposits the suspended mineral debris within the shoreline clays. The fact that under magnification pegmatite-like temper composed of mica, quartz of various types, sand, etc., is prevalent can probably be accounted for by these unintentional inclusions within the native clays. The only nonplastic products in some specimens are the naturally occurring schistose inclusions. Temper, in general, can be said to be a fine sand (both rounded and angular fragments) mixed with about 10 percent larger, angular white quartz fragments averaging approximately 2 mm in diameter.

Texture. A light to medium sandy texture that depends largely upon the amount of sand present and the type of surface treatment. Some pots do not feel sandy, while others are extremely sandy to the touch. None are as friable as the Pope's Creek type.

Color. The color range is great. Both the interior and the exterior surfaces vary from red or reddish-orange

through different shades of brown, rusty-brown, and tan. Occasionally the interior will be darker than its corresponding exterior. The core represents a merging of interior-exterior colors.

Surface Treatment. The exterior is roughened over the entire surface with cordwrapped paddle impressions. Sometimes the cordmarking overlaps to form a checked design (Fig. 4m), while other times it does not overlap and appears to have been carefully placed. There is a tendency for the cordmarking to be applied either vertically or slightly obliquely to the lip. There is also a pattern of two strands of cord close together, separated from the next two by as much as 5 mm. The impressions are distinct along the upper one-third of a pot, becoming less distinct and more squashed toward the bottom. The interios are completely covered with widely spaced cord imprints arranged horizontally or slightly obliquely to the lip. The ridges between the strands are characteristically squashed flat as by an anvil, with only the deepest impressions remaining. Cordmarking becomes less distinct near the bottom.

Vessel Form. Lips are generally rounded to slightly peaked and irregular or occasionally flattened with small amounts of clay pressing toward the exterior. The majority are smoothed, but cordmarking does occur on some. Rims are straight to slightly everted, body apparently conical, semiconical, or occasionally globular, and base globular or bag-shaped. Thickness averages 5 mm.

Decoration. None. Repair holes common and characteristic.

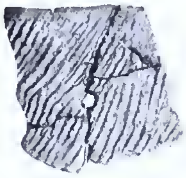
Sample Size. Kunkle Collection--23 rimsherds, 1 restored pot, 1 restorable pot; WPMM, Stone Collection--5 rimsherds, 3 bodysherds; Stoerzinger Collection--56 rimsherds; WPMM, Kent Collection--3 rimsherds, 5 bodysherds.

Accokeek Cordmarked (Fig. 5a-e)

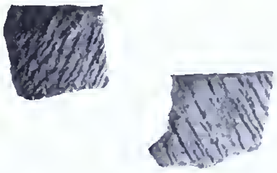
Type. This type conforms closely to either "Accokeek Cordmarked" (Stephenson, Ferguson, and Ferguson 1963: 98-100)

Figure 5. Middle Woodland Pottery.

a-e Accokeek Cordmarked; f, Mica Schist-tempered Exterior Cordmarked: Advanced; g-h, Advanced Interior-Exterior Cordmarked; i, Woodland Cordmarked.

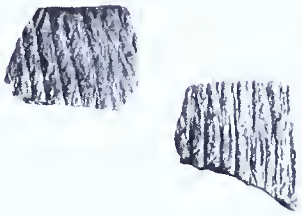


a

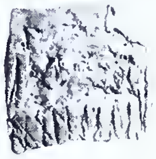


b

c



d



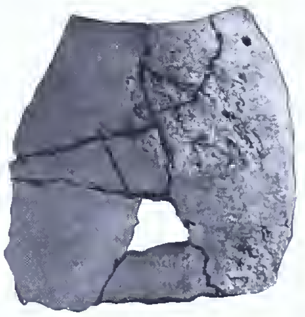
e

f

g

h

i



j

or "Stony Creek Cordmarked" (Evans 1955: 69-71).

Method of Manufacture. Same as Susquehanna Cordmarked.

Temper. Temper conforms to that for Susquehanna Cordmarked, with the percentage of angular quartz incorporated in the sand being slightly greater. This, however, would not be a good criterion for field identification. Gneiss occurs as the predominant temper in a small proportion of the sample.

Texture. Same as Susquehanna Cordmarked.

Color. Same as Susquehanna Cordmarked.

Surface Treatment. The major difference, in fact the defining difference for this type, is the lack of interior cordmarking. The interiors are characteristically smoothed, although occasionally a faint cord impression may be detected beneath the smoothing. A few sherds exhibit exterior net or fabric roughening, while several others have plain interior and exterior surfaces.

Vessel Form. Same as Susquehanna Cordmarked.

Decoration. Same as Susquehanna Cordmarked.

Sample Size. Stoerzinger Collection--34 rimsherds, 3 bodysherds; Kunkle Collection--7 rimsherds; WPMM, Kent Collection--6 rimsherds, 12 bodysherds.

Mockley Net Impressed (Fig. 6f)

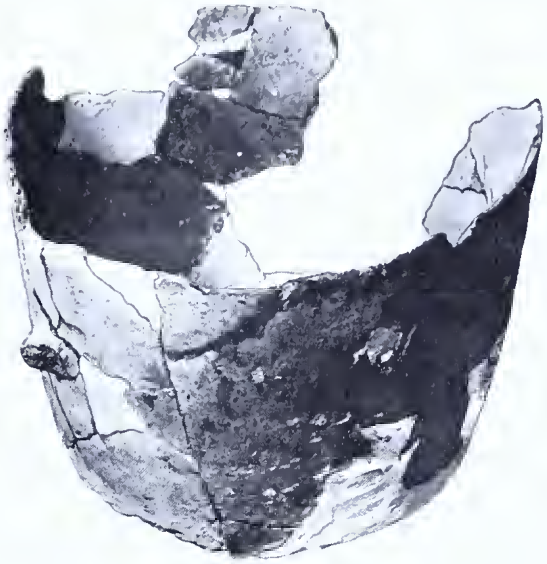
Type. This pottery is identical to the type described by Stephenson as "Mockley Net Impressed" (Stephenson, Ferguson, and Ferguson 1963: 107-108).

Method of Manufacture. Coil made and paddle malleated. Coil breaks are clean, conspicuous, and characteristic of the type. Individual coils are from 20 to 40 mm wide.

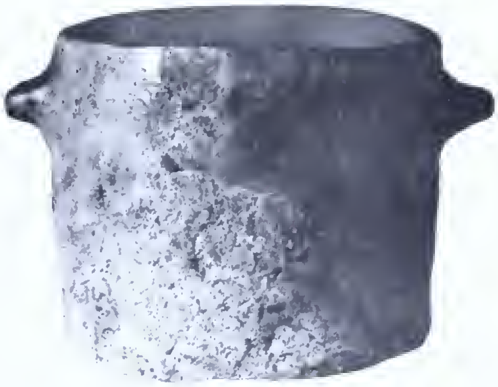
Temper. Temper is white, unburned for the most part, crushed shell that appears to have come from ocean shell rather than fresh water mussel. The particles are irregular in shape and range from 1 to 2.5 mm in diameter. Temper

Figure 6. Restored Early and Middle Woodland Pots.

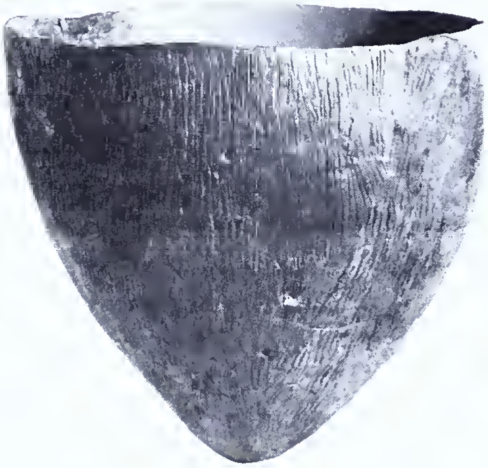
a, Marcey Creek Plain (Ht. 10" , Dia. 12½"); b, Light Plain (Ht. 9¼", Dia. 10½" x 8 3/4"); c, Susquehanna Cordmarked (Ht. 13½", Dia. 14¼"); d, Three Mile Island Pot (Ht. 15" Dia. 13 3/4"); e, dentate stamped pot (Ht. 12 1/8", Dia. 10½"); f, Mockley Net Impressed (Ht. 15"", Dia. 20 3/4").



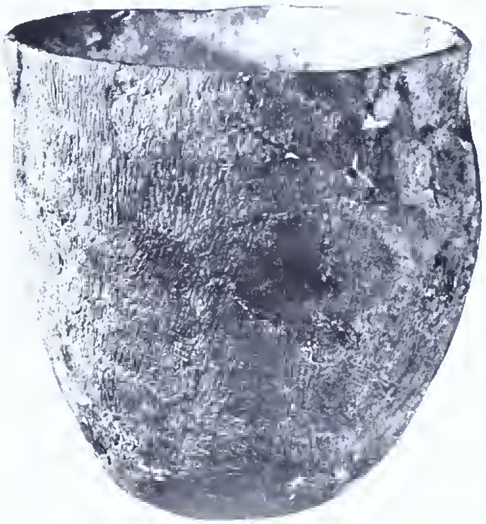
a



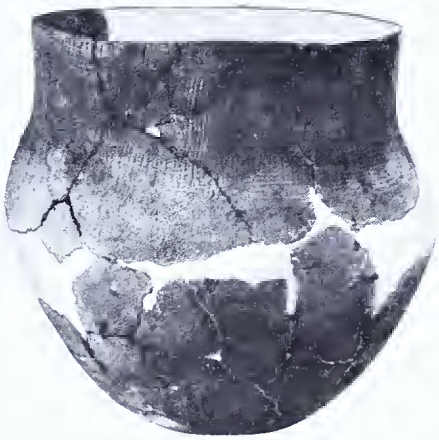
b



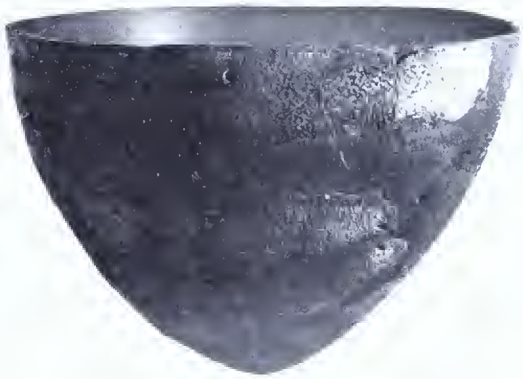
c



d



e



f

comprises about 20 to 30 percent of the paste.

Texture. See Stephenson (1963: 106). "Very clayey, soft and crumbly."

Color. Exterior is rusty, reddish or reddish-tan to brown with black staining. The interior is about the same as the exterior, but slightly darker. Core is gray or black.

Surface Treatment. Exterior surfaces are covered with loose, open mesh net impressions, while the interior surface is smooth and irregular.

Vessel Form. The Muddy Run restored pot compares favorably with Stephenson's (1963: 104) example, Figure 23b.

Decoration. None. Mending perforations are frequent and occur on all parts of the vessel.

Sample Size. Walbert Collection--1 restored vessel; WPMM, Stone Collection--3 bodysherds, Stoerzinger Collection--3 bodysherds.

Advanced Interior-Exterior Cordmarked (Fig. 5g-h)

Type. This type is a more advanced variety of interior-exterior cordmarked pottery than Vinette 1. The texture is harder than Vinette 1, the temper is non-quartz and smaller, both interior and exterior cordmarking tends toward the horizontal, and occasionally there are wiped areas on the interior.

Method of Manufacture. Apparently made by coiling, although coil breaks are not a conspicuous feature.

Temper. Temper is a heterogeneous mixture consisting of mica, some clear and smoky quartz, and various other minerals. The largest particles are 3 mm in diameter, while the average size is between 1 and 2 mm in diameter.

Texture. The pottery is somewhat friable and loosely compacted, but is still noticeably more solid than Vinette 1.

Color. The outer surface is brown or tan in color; the interior is slightly darker.

Surface Treatment. The exterior is completely covered with horizontal or slightly oblique cordmarks. Cord strands are close together and distinctly applied. Cordmarking on the interior is applied either horizontally or slightly obliquely to the lip. Occasionally an attempt

was made to remove the marks; however, in a majority of cases the cord impressions remain intact.

Vessel Form. Lips are generally flattened, rims straight, body and basal shape unknown. Thickness averages 9 mm.

Decoration. With the exception of cordmarking across the lip surface, probably none.

Sample Size. Kunkle Collection--3 rimsherds, 3 bodysherds; Stoerzinger Collection--8 rimsherds, 5 bodysherds, (12 sherds are from the same pot).

Mica-Schist-tempered Exterior Cordmarked: Advanced (Fig. 5f)

Type. This type is apparently an advanced variety of the mica schist-tempered exterior cordmarked pottery. Certain characteristics, such as rim form, clarity of exterior cordmarking, interior surface treatment, hardness, and general temper characteristics, are sufficiently different to warrant a separate catagory.

Method of Manufacture. The pottery is probably coiled and paddle malleated, although coil breaks are not apparent on most specimens.

Temper. Temper consists of large fragments of mica schist and crystalline rock. The crystalline rock is a microconglomerate composed of clear and milky quartz that appears to have been derived from the same geological formation as the schist. Temper ranges from 2 to 7 mm in diameter, averages 3 to 4 mm, and is smaller than that of the other mica schist-tempered pottery varieties. It constitutes less than 30 percent of the paste.

Texture. The pottery is still friable, but generally more compact and better made then the other kinds of mica schist-tempered pottery.

Color. The exterior color is reddish-brown to red with some blackened areas on the rim. The interior is dark brown to black.

The core is generally lighter in color than either of the outer surfaces.

Surface Treatment. The exterior is covered with cordmarking which lies horizontally or slightly obliquely to the lip. The cord strands are about 2 mm apart and much more distinct than on the other schist-tempered type. The interior also received more attention than it had on the other types. There is a definite smoothing attempt, almost as though the clay were rubbed while wet to form a thin slip. This treatment tended to push the temper particles toward the interior of the sherds rather than leaving them exposed on the surface.

Vessel Form. Lips are slightly rounded and overlapping toward the exterior, with diagonal cordmarking across the surface. Rims are slightly excurvate, body shape unknown, except that the slight bowing on the rimsherds suggest a bag-shaped or gobular vessel rather than one of the flat-bottomed type. Base shape unknown. Thickness averages 8 to 10 mm.

Decoration. With the exception of the cordmarking on the lip surface, probably none.

Sample Size. WPMM, Stone Collection--2 rimsherds, 6 bodysherds.

Woodland Cordmarked (Fig. 5i)

Type. This type is similar to what has been referred to as a generalized "Woodland Cordmarked" (Griffin n.d.). As with Mahoning Cordmarked in western Pennsylvania, the Lower Susquehanna specimens are probably local representatives of Woodland Cordmarked. The exterior is cordmarked while the interior is smooth.

Method of Manufacture. Coil made and paddle malleated. Coil breaks are not a conspicuous feature and occur in only a small portion of the sample. Coils are approximately 40

mm wide; bonding between the various members is nearly complete and suggests improved production techniques.

Temper. Temper consists of crushed quartz, 35 percent of which is fractured rock crystal. The size of the temper ranges between 1 and 3 mm in diameter and makes up 30 to 50 percent of the paste.

Texture. Although the pottery appears visually to be compact, it is actually coarse, rough, friable, and will crumble easily between the fingers. There is no sandy texture.

Color. The exterior ranges from tan to brown with black smudging which tends to give it a slightly darker appearance than the interior. The interior is predominantly tan or buff.

Surface Treatment. Exterior surfaces are completely covered with distinct and deeply impressed cordmarks that are applied obliquely to the lip in the rim area and more randomly over other areas of the pot. Interior surfaces are smooth. Temper particles protrude from the surface and are surrounded by radiating drying cracks. Bands of wiping striations about 2 mm wide, applied in a back and forth motion horizontal to the lip, occur on most sherds; the impressions are not deep and the temper is not dragged.

Vessel Form. Lips are slightly rounded and smooth, rims straight, body and basal shapes unknown. Thickness averages 5 to 7 mm.

Decoration. None.

Sample Size. WPMM, Haldeman-O'Connor Collection--8 rimsherds, 116 bodysherds (probably one pot).

Summary and Conclusions

The time-space relationships discussed in this section are derived from an interpretation of the ceramic types (Smith 1971). An attempt is made to establish a chronological model for the Early and Middle Woodland pottery of the Lower

Susquehanna Valley be evaluating the various technological and stylistical changes between the different pottery types, and by relating the types to absolute and relative dating evidence both internal and external to the region (Fig. 7).

Analysis of the pottery, first of all from the five regions, clearly demonstrates that during the Early and Middle Woodland periods the entire Susquehanna Valley was within the spheres of influence of at least three different culture areas: one to the north, another to the south, and a third to the west-southwest. Much of the time, however, the Valley was marginal to developments occurring at the centers of all three areas. The ceramic histories, especially those of the Juniata and Lower Susquehanna regions, indicate that external cultural influences entered at different times and with varying degrees of intensity and to varying geographic extent. It, therefore, seems expedient to discuss the ceramic chronology and spatial relationships in terms of the regions most strongly integrated into the different cultural spheres: Southern Sphere (Lower Susquehanna), Southwestern Sphere (Juniata), and Northern Sphere (North and West Branch Susquehanna). The conclusions that are now presented refer only to the Southern Sphere.

Marcey Creek Plain is considered by most to be the earliest pottery in Pennsylvania and surrounding states (Witthoft n.d.: 4; Kraft 1970; 113; Kinsey 1972: 451). The only question seems to be whether or not to include the type within the definitional framework of the Transitional period or the Early Woodland period. Kraft (1970: 138), at the Miller Field site in New Jersey, and Kinsey (1975: 71), at the Byram site also in New Jersey, have both demonstrated a relationship between flat-bottomed, steatite-tempered vessels and Orient Fishtail points. Orient tradition points are radiocarbon dated at the Miller Field site to 1220 B.C. ± 120 years[1] and at the Faucett

---

[1] Radiocarbon dates cited in the report are uncorrected.

Figure 7. Tentative Ordering of Pottery Types in the Lower Susquehanna River Valley.

There is considerable temporal overlapping of types and the arrangement of those that are indented is only approximate.

SUSQUEHANNOCK **(1500 A.D.-1763 A.D.)**	STRICKLER CORDMARKED WASHINGTON BORO INCISED SCHULTZ INCISED
LATE WOODLAND **(1000 A.D.-1550 A.D.)**	FUNK INCISED LANCASTER INCISED SHENKS FERRY INCISED SHENKS FERRY CORDMARKED CLEMSONS ISLAND PUNCTATE
MIDDLE WOODLAND **(500 B.C.-1000 A.D.)**	WOODLAND CORDMARKED MOCKLEY NET IMPRESSED ADVANCED MICA SCHIST-TEMPERED EXTERIOR CORDMARKED ADVANCED INTERIOR-EXTERIOR CORDMARKED SUSQUEHANNA CORDMARKED ACCOKEEK CORDMARKED SUSQUEHANNA NET OR FABRIC IMPRESSED
EARLY WOODLAND **(1000 B.C.-300 B.C.)**	POPE'S CREEK NET IMPRESSED BARE ISLAND CORDMARKED VINETTE 1 LIGHT PLAIN (VAR. EXTERIOR CORDMARKED AND INTERIOR-EXTERIOR CORDMARKED) MICA SCHIST-TEMPERED EXTERIOR CORDMARKED (VAR. PLAIN AND INTERIOR-EXTERIOR CORDMARKED) SELDON ISLAND CORDMARKED MARCEY CREEK PLAIN

site in northeastern Pennsylvania along the Delaware river to 810 B.C. ± 100 years (Kinsey 1972: 358). The Marcey Creek Plain type has been found stratigraphically lower than Vinette 1 at the Wilson site in Bradford County (McCann 1962: 53-55); it is the deepest pottery at the Byram site; and it is apparently the earliest material at the Keyser Farm site in Virginia.

Marcey Creek Plain pottery has a wide distribution within the Susquehanna Valley. It occurs on the main river as far north as the Wilson site where 13 small sherds were recovered. Lucy (1959: 28) reports sherds of this type from Azilum, and indicates that Wilson and Azilum are the only major sites where the type is found in the Upper Susquehanna Valley. A few sherds have been discovered at Daugherty's Run on the West Branch, but the type is much more common in the Lower Susquehanna, especially at Bare Island. Occasionally a sherd or two is found in Franklin County, and two sherds were found at the Coon Rock Shelter in Bedford County.

Marcey Creek Plain has its most frequent occurrence along the southern border of Pennsylvania and in the Potomac drainage (Evans 1955: 54-55; Manson 1948: 225-226). It is also found in New Jersey at the Raccoon Point site (Kier and Calverly 1957: 86-87), the Ware site (McCann 1950: 316, 321), as well as, a number of other sites (Cross 1941: 60, 65-66). Cross (1956: 175) indicates that Koens-Crispin Plain, which is New Jersey's steatite-tempered pottery, is abundant in the southern part of the state and gradually diminishes and eventually disappears as one moves northward toward the Millstone drainage. Probably Marcey Creek Plain was brought to the Lower Susquehanna from the Potomac with the stimulus for the type deriving from even further south in the fiber-tempered tradition. Its introduction into the area must have been followed closely in time by the introduction of Seldon Island Cordmarked. It is interesting to note that certain variations of Marcey Creek Plain begin to suggest

characteristics common to Seldon Island Cordmarked.

Much of Seldon Island Cordmarked is closely related in form to its forerunner, Marcey Creek Plain, but seems to be somewhat better made (conoidal bases may make their appearance at this time). Once these types entered or were diffused into the Lower Susquehanna region, local populations apparently took the foreign ideas, and by using their own available resources, made reasonably accurate copies. This is represented by the Mica Schist-tempered Plain, Light Plain, Mica Schist-tempered Exterior Cordmarked, and Gneiss-tempered Exterior Cordmarked pottery types and varieties. The forms of these vessels are the same as their southern progenitors, certain ones being more closely aligned to Marcey Creek Plain, others to Seldon Island Cordmarked. Light Plain is widely distributed in the Lower Susquehanna south of the Juniata River. It has been found on Haldeman's Island, Three Mile Island, Bare Island, and at the Light site. In New Jersey, a similar pottery type defined as Ware Plain (McCann 1950: 316-317) is identical with Koens-Crispin Plain except that the temper is either not visible or consists of limestone. McCann reports that from the Ware site there are a few sherds which are similar to Ware Plain in all respects except that "there are rather faint coarse cord impressions on the outer surface". (McCann 1950: 317). A mica schist-tempered, lug-handled bowl was discovered in the steatite-tempered ceramic levels at the Byram site (Kinsey 1975: 72). On the Delmarva Peninsula, Dame's Quarter Black Stone Tempered pottery is a crushed stone-tempered, flat-bottomed, lug-handled type (Lewis 1972). Surfaces are reported to be predominantly smooth, but exterior cordmarking and occasional interior cordmarking is noted. Light Plain, along with Gneiss-tempered Exterior Cordmarked pottery, is statistically the earliest pottery at the Three Mile Island site (Fig. 8).

Figure 8. General View of the Three Mile Island Site, Dauphin County, Pennsylvania.

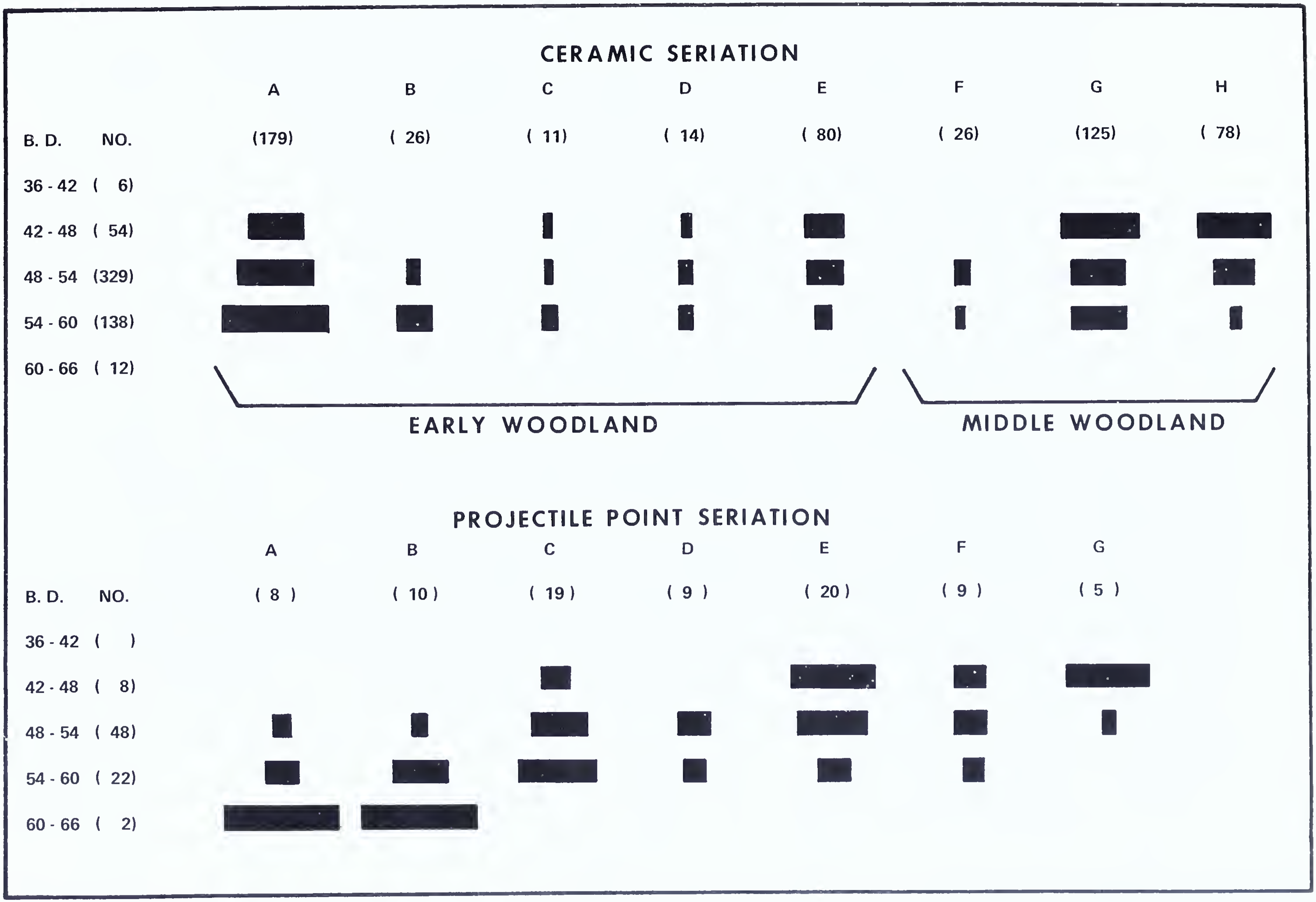
Forty-nine five-foot squares were excavated. The squares were stripped in six inch arbitrary levels to an average depth of 25 inches below the ground surface.

The ceramic sample from the Three Mile Island site is not impressive, but it is instructive. The pottery has been sorted into various groups and then statistically analyzed for both vertical and horizontal interpretation within the site (Smith 1977: 12-30).

Sorting along a vertical axis first by relative sherd count, and supplemented by percent popularity distributions between levels, permitted the construction of a preliminary temporal sequence (Fig. 9). Eight pottery types were defined. From earliest to latest they are (A) Light Plain (179 sherds), which also includes sherds of the exterior cordmarked variety; (B) a type closely resembling Susquehanna Cordmarked (26 sherds); (C) a type nearly identical to Susquehanna Cordmarked (11 sherds); (D) Light Plain var. Interior-Exterior cordmarked (14 sherds); (E) Pope's Creek Net Impressed (80 sherds); (F) interior-exterior cordmarked pottery similar to that found at the Erb Rock Shelter and related to the Middle Woodland period (26 sherds); (G) Accokeek Cordmarked varieties (125 sherds); and (H) Clemsons Island Punctate (78 sherds). A restorable pot, alleged to have been found washing from the bank at the southern end of the island, conforms in most aspects to the Clemsons Island type except that it lacks the rim punctations (Fig. 6d). It is difficult to distinguish this pot from the more simplistic Woodland Cordmarked vessels. If we reason further and consider some of the elaborate rim varieties of Clemsons Island pottery from the Sheep Rock Shelter (Michels and Smith 1967: 473-475), it is not difficult to imagine the straight and/or slightly everted rim vessels, with or without punctations, as representing an early variety of the Clemsons Island type.

The statistical placement of minor groups of pottery such as B and C may or may not be significant. The fact that these samples, which resemble Middle Woodland Susquehanna Cordmarked, appear to be ordered between two pottery groups thought to bracket the Early Woodland period, could suggest one of several alternatives: (1) that the positioning of the samples with relationship to the other pottery groups has been affected by the fact that both samples are small and tightly clustered spatially; (2) that Pope's Creek Net Impressed

Figure 9. Three Mile Island Ceramic Seriation. A, Light Plain; B, Susquehanna Cordmarked-like; C, Susquehanna Cordmarked-like; D, Light Plain var. Interior-Exterior Cordmarked; E, Pope's Creek Net Impressed; F, Interior-Exterior Cordmarked; G, Accokeek Cordmarked; H, Clemsons Island Punctate.



CERAMIC SERIATION

PROJECTILE POINT SERIATION

> occurs in the Middle Woodland period rather than the Early Woodland period at this site, and that these samples represent Middle Woodland types; or (3) that certain varieties of Susquehanna Cordmarked had their incipient developmental stages in the Early Woodland period.

It must be about this time that the forerunners of a strong interior-exterior cordmarked Vinette 1 influence were moving southward and replacing the earlier steatite-tempered tradition. This intrusion of a northern grit-tempered tradition may account for the small amount of schist- and gneiss-tempered, interior-exterior cordmarked pottery. It isn't long, however, before Vinette 1 becomes firmly entrenched and we begin to find local modifications on this type.

Vinette 1 is documented and dated in New York where it is the characteristic pottery of the Meadowood phase. Several dates--Oberlander No. 2 site: 998 B.C. ± 68 years; Morrow site: 563 B.C. ± 250 years; Nahrwold No. 2: 760 B.C. ± 80 years; and the Scaccia site: 870 B.C. ± 60 years--definitely place this pottery within the Early Woodland period (Ritchie 1965: 180; Ritchie 1969: XXII-XXIV). The earliest date so far assigned to a Meadowood component in New York is 1230 B.C. ± 95 years (Funk, Rippeteau, and Houck 1974: 1). It is likely that the type reached the Lower Susquehanna sometime after it had become firmly established in central New York and southern New England. Variants are present in coastal New York (Lopez 1957); it has been found at numerous sites in New Jersey (Mason 1957: 7-8; Cross 1956: 176); and it is the most diagnostic Early Woodland pottery throughout the Delaware and Susquehanna drainages.

Classic Vinette 1 is not especially common in the Lower Susquehanna. A small number of sherds that resemble the type were excavated at the Kent-Hally site on Bare Island (Kinsey 1959b: 124-125), and sherds from one or possibly two vessels were recovered from the Erb Rock Shelter (Kent and

Packard 1969; 8). At the Heck Rock Shelter, Kinsey (1958; 5) reports excavating chert-tempered, interior-exterior cordmarked sherds which also resemble Vinette 1. This marks the southermost extension of Vinette 1-like pottery in Pennsylvania. Interior-exteior cordmarked Vinette 1-like sherds are occasionally reported from still further south in Virginia and on the Delmarva Peninsula. Vinette 1 is recorded from the Cove site, Wilson site, Queen Esthers Flats, and the Sick Farm site in Bradford County, North Branch Susquehanna region (Lucy 1959: 30).

Bare Island Cordmarked, which is better made than any pottery type discussed thus far, may well represent the true merging of the southern steatite-tempered tradition with the strong northern interior-exterior cordmarked, grit-tempered tradition.

It was perhaps in this period of changing ideas that the first important net-impressed influence, in the form of Pope's Creek Net Impressed diffused northward. This pottery, which has an affinity to ceramic types in Maryland, is dated around 100 B.C. to A.D. 300 (Stephenson, Ferguson, and Ferguson 1963: 185). It should be noted, however, that Stephenson used considerably later dates of 500 B.C. to A.D. 300 for his entire Early Woodland manifestation at the Accokeek Creek site. A more realistic Early Woodland date is the 480 B.C. radiocarbon estimate from the middle of a Pope's Creek occupation level at the Loyola site near Port Tobacco, Maryland (Gardner and McNett 1971: 45).

At Three Mile Island, statistical indications are that Pope's Creek Net Impressed occurs later than Light Plain, earlier than Accokeek Cordmarked, and in a period when variations of interior-exterior cordmarked pottery were popular. A late Early Woodland date of entry into the Lower Susquehanna, which is the only place in the Valley where this pottery has so far been found, may be justified.

At this time, when the transition to the Middle Woodland period is probably made, the situation in the Lower Susquehanna becomes more complex and more dead-end developments appear. One such dead-end is represented by the various kinds of net-impressed pottery. Cross (1956) suggests a long time span for net-impressed pottery at the Abbott Farm site in New Jersey. I would suggest that in the Lower Susquehanna, and for that matter throughout the entire drainage, that Susquehanna Net or Fabric Impressed pottery is, with continued additional southern influences, basically a derivative of the more crudely made Pope's Creek Net Impressed; that is spans the entire Middle Woodland period; and that it terminates at the start of the Late Woodland period. Pottery Hill Net Impressed and Roughened of the Prince George Series and Albermarle Net Impressed are the closest southern relatives of Susquehanna Net or Fabric Impressed. According to Evans (1955: 144), the first of these types declined in popularity by Middle Woodland times, while the latter increased in popularity. Stephenson (1963: 103) places Albermarle Net Impressed in the Middle Woodland period. At the Fredenburg site in New York, net-impressed sherds were associated with pottery of the Fox Creek Complex and radiocarbon dated at A.D. 360 ± 100 years (Hesse 1968: 27-32). The Fox Creek Complex is further dated at the Davenport site, New York, to A.D. 325 ± 95 years (Funk, Rippeteau, and Houck 1974: 27), and at the Westheimer site, New York, to A.D. 410 ± 80 years and A.D. 450 ± 80 years (Funk 1968).

Net and fabric-impressed pottery is found in the Badin series of North Carolina (Coe 1964: 28-29); various types are common at the Accokeek Creek site in Maryland (Stephenson, Ferguson, and Ferguson 1963: 94-96, 102-103, 107); and Evans (1955) lists a large number of net, fabric, and net and fabric roughened types for Virginia. It is also common at

the Abbott Farm site where it made its appearance in Early Woodland times, became the dominant pottery type at the site, and continued to maintain this position into Late Woodland times (Cross 1956). Finally, net-impressed pottery is reported for the North Beach Focus of coastal New York, the earliest ceramic culture in that area (Smith 1950: 196).

A large sample of net-impressed pottery has been recovered from the Faucett site along the Upper Delaware River where it was found in association with several other pottery types, including some that are fabric-impressed, and a large number of lithic artifacts (Kinsey 1972). The Bushkill Complex, as it is called, is radiocarbon dated 100 B.C. ± 135 years at Faucett (Kinsey 1975: 96) and 480 B.C. ± 80 years at Miller Field (Kinsey 1972).

In the Susquehanna drainage, excluding Mockley Net Impressed and Pope's Creek Net Impressed, net-impressed pottery has been found as far north as Otego County, New York (Hesse 1968: 27-32). Two quartz-tempered, net-impressed sherds were recovered from an early site near Wapwallopen, Pennsylvania. At the same site, a small number of sherds tempered with crystalline rock, cordmarked on the interior and fabric impressed on the exterior, were also recovered. Thirty-nine specimens were found eroding from a bank at the Packer's Island site. A few net or fabric-impressed sherds were excavated from Coon Rock Shelter in Bedford County. Net and fabric-impressed sherds are also scattered throughout the Lower Susquehanna, being most common at Bare Island.

Vinette 1-like pottery and Bare Island Cordmarked were still popular during at least the early part of the Middle Woodland period. At some point, however, a strong sand-tempered tradition, in the form of Accokeek Cordmarked, entered the Lower Susquehanna. Stephenson and others (1963: 188) suggest a Middle Woodland date of A.D. 300 to A.D. 900 for Accokeek Cordmarked; it has been found at the Stoerzinger

site seemingly underlain by gneiss- and quartz-tempered sherds (Boyd 1964: 12); and at Three Mile Island it is statistically later than Pope's Creek Net Impressed, earlier than Woodland Cordmarked or Clemsons Island Punctate, and proceeded by a variety of interior-exterior cordmarked types.

Sand-tempered pottery and the tradition of sand-tempering appear to be of southern origin. The Badin series in North Carolina is a sand-tempered tradition (Coe 1964: 27-29). Sand-tempered types similar to those in the Lower Susquehanna are common in Virginia (Evans 1955: 69-70), Maryland (Stephenson, Ferguson, and Ferguson 1963: 98-100), and southern New Jersey (Cross 1956: 137-138). Sand-tempered pottery apparently occurs early in the Delaware Valley. Witthoft reports pots of Vinette 1 form, but with sherds "thinner, sand-tempered, reddish, and soft" (Witthoft n.d. 8). He further reports that the exteriors are covered with cord impressions which are often criss-crossed, and that the interiors may be plain or may exhibit partially obliterated cordmarking.

In the Susquehanna drainage, this type is limited primarily to the Lower Susquehanna, although several sand-tempered sherds have been found as far north as the Wapwallopen and Packer's Island sites.

Accokeek Cordmarked, temepered with gneiss and associated with other Early and Middle Woodland types, has been recovered from the Erb Rock Shelter (Kent and Packard 1969: 8). It is also one of the most common types at Three Mile Island and has been found in smaller quantities on Bare Island and at the Tower site opposite Marysville, Cumberland County.

Susquehanna Cordmarked must be both temporally and spatially associated with Accokeek Cordmarked. It apparently represents once again the merging of a southern tradition with a lingering northern interior-exterior cordmarked tradition, which, as we have seen, was well established before

this time in the Lower Valley.

Susquehanna Cordmarked closely resembles pottery groups B and C from Three Mile Island where statistical evidence suggests that it began in Early Woodland and continued through Middle Woodland times.

It is interesting to note that neither Stephenson nor Evans describe sand-tempered, interior-exterior cordmarked pottery, or for that matter any interior cordmarked pottery. It would appear that the southern border of Pennsylvania is very near the line convergence between a major northern and a major southern pottery tradition.

Cross states that "except on . . . very coarse ware, interior cordmarkings are not good time determinatives because they continue, on increasingly fine ware, through the Middle and into the Late Woodland periods" (Cross 1956: 176). Susquehanna Cordmarked probably corresponds to what Cross calls the "Straight Cord" type, in which occasional interior cordmarking does occur (Cross 1956: 137-138).

Toward the latter part of the Middle Woodland period, Stephenson (1963: 103) suggests between 900 and 1200 A.D. -- a more recent radiocarbon date of 815 A.D. from the Loyola deposits supports this estimate (Gardner and McNett 1971: 45), while dates around 300 A.D. from the Delmarva area (Wise 1974) suggest an earlier and more realistic placement--Mockley Net Impressed entered the area from either the east or the south. While it is found in Maryland at the Accokeek Creek site (Stephenson, Ferguson, and Ferguson 1963: 197-108) and in New Jersey at the Abbott Farm site (Cross 1956: 139-140), its influence was never great in the Lower Susquehanna where it has a short life history and where it has been found only at the Erb and Muddy Run Rock Shelters.

The remaining types--Mica Schist-tempered Exterior Cordmarked: Advanced, Woodland Cordmarked, and Advanced Interior-Exterior Cordmarked --seem to represent improved, indigenous developments from all that went before. Woodland Cordmarked, or its regional representatives, and perhaps the latest type from Three Mile Island may be the forerunners for Late Woodland Clemsons Island.

Within the Susquehanna drainage, only Marcey Creek Plain Vinette 1, Susquehanna Net or Fabric Impressed, and Woodland Cordmarked have any significant distribution outside of the Lower Susquehanna region.

Bibliography

BOYD, GEORGE R.

1964 The Stoerzinger Site of Upper Bare Island, Lancaster County, Pennsylvania. Eastern States Archaeological Federation, Bulletin No. 23, p. 12.

COE, JOFFRE L.

1964 The Formative Cultures of the Carolina Piedmont. Transactions of the American Philosophical Society, Vol. 54, Pt. 5. Philadelphia.

CROSS, DOROTHY

1941 The Archaeology of New Jersey Vol. I. The Archaeological Society of New Jersey and the New Jersey State Museum. Trenton.

1956 The Archaeology of New Jersey Vol. II. The Archaeological Society of New Jersey and the New Jersey State Museum. Trenton.

EVANS, CLIFFORD

1955 A Ceramic Study of Virginia Archaeology. Bureau of American Ethnology, Bulletin No. 160. Washington.

FUNK, ROBERT E.

1968 A New Middle Woodland Complex in Eastern New York. New York State Archaeological Association, Bulletin No. 44, pp. 1-7. Ann Arbor.

FUNK, ROBERT E., BRUCE E. RIPPETEAU, and RALPH M. HOUCK

1974 Recent Research in the Upper Susquehanna Valley, New York State. Pennsylvania Archaeologist, Vol. 44, No. 3, pp. 1-31. Ann Arbor.

GARDNER, WILLIAM M., and CHARLES W. McNETT, JR.

1971 Early Pottery in the Potomac. In Proceedings of the Middle Atlantic Archaeology Conference, edited by Charles W. McNett, Jr. and William M. Gardner, pp. 42-52. Washington, D.C.

GRIFFIN, JAMES B.

n.d. Pottery from the Sugar Run Site, Warren County, Pennsylvania. Manuscript on file in the William Penn Memorial Museum, Harrisburg.

HEISEY, HENRY W.

1971 An Interpretation of Shenks Ferry. *Pennsylvania Archaeologist*, Vol. 41, No. 4, pp. 44-70. Ann Arbor.

HEISEY, HENRY W., and J. PAUL WITMER

1964 The Shenks Ferry People: A Site and Some Generalities. *Pennsylvania Archaeologist*, Vol. 34, No. 1, pp. 8-34. Gettysburg

HESSE, F. J.

1968 The Fredenburg Site: A Single Component Site of the Fox Creek Complex. *New York State Archaeological Association, Bulletin* No. 44, pp. 27-32. Ann Arbor.

HUNER, JOHN B.

1967 A Preliminary Report on the Steatite Vessels, Ceramics, and Pipes of Sheep Rock. *In Archaeological Investigations of Sheep Rock Shelter, Huntingdon County, Pennsylvania*, edited by Joseph W. Michels and Ira F. Smith, pp. 427-551. The Pennsylvania State University, University Park.

KENT, BARRY C., and VANCE P. PACKARD

1969 The Erb Rockshelter. *Pennsylvania Archaeologist*, Vol. 39, Nos. 1-4, pp. 29-39. Ann Arbor.

KENT, BARRY C., IRA F. SMITH III, and CATHERINE McCANN (EDITORS)

1971 *Foundations of Pennsylvania Prehistory*. Anthropological Series, No. 1. The Pennsylvania Historical and Museum Commission, Harrisburg.

KIER, CHARLES F., JR., and FRED CALVERLEY

1957 The Raccoon Point Site, An Early Hunting and Fishing Station in the Lower Delaware Valley. *Pennsylvania Archaeologist*, Vol. 27, No. 2. Milton.

KINSEY, W. FRED, III

1958 An Early Woodland Rock Shelter in South Central Pennsylvania. Pennsylvania Archaeologist, Vol. 28, No. 1, pp. 3-6. Gettysburg.

1959a Historic Susquehannock Pottery. In Susquehannock Miscellany, edited by John Witthoft and W. Fred Kinsey, pp. 61-98. Harrisburg.

1959b Recent Excavations on Bare Island in Pennsylvania: The Kent-Hally site. Pennsylvania Archaeologist, Vol. 29, Nos. 3-4, pp. 109-133. Gettysburg.

1975 Faucett and Byram Sites. Chronology and Settlement in the Delaware Valley. Pennsylvania Archaeologist, Vol. 45, Nos. 1-2, pp. 1-103. Ann Arbor.

KINSEY, W. FRED, III, with contributions by HERBERT C. KRAFT, PATRICIA MARCHIANDO, DAVID J. WERNER

1972 Archaeology in The Upper Delaware Valley. Anthropology Series, No. 2. The Pennsylvania Historical and Museum Commission, Harrisburg.

KINSEY, W. FRED, III, and JEFFREY R. GRAYBILL

1971 Murry Site and Its Role in Lancaster and Funk Phases of Shenks Ferry Culture. Pennsylvania Archaeologist, Vol. 41, No. 4, pp. 7-44. Ann Arbor.

KRAFT, HERBERT C.

1970 The Miller Field Site, Warren County, N.J.: A Study in Prehistoric Archaeology Part I, The Archaic and Transitional Stages. Seton Hall University Press, South Orange, New Jersey.

LEWIS, CARA L.

1972 Early Pottery on The Delmarva Peninsula. Paper presented at the 1972 Meeting of The Eastern States Archaeological Federation, Harrisburg.

LOPEZ, JULIUS

1957 Some Notes on Interior Cord-Marked Pottery from Coastal New York. Pennsylvania Archaeologist, Vol. 27, No. 1, pp. 23-32. Gettysburg.

LUCY, CHARLES L.

1959 Pottery Types of the Upper Susquehanna. Pennsylvania Archaeologist, Vol. 29, No. 1, pp. 28-37. Gettysburg.

MANSON, CARL

1948 Marcey Creek Site: An Early Manifestation in the Potomac Valley. American Antiquity, Vol. 13, No. 3, pp. 223-227. Menasha.

MASON, RONALD J.

1957 New Jersey State Museum Excavations at the Steppel Site, Morris County. The Archaeological Society of New Jersey Bulletin No. 14, pp. 1-20. Trenton.

MAYER-OAKES, WILLIAM J.

1955 Prehistory of the Upper Ohio Valley. Annals of Carnegie Museum, Vol. 34, No. 2. Pittsburgh.

MCCANN, CATHERINE

1950 The Ware Site, Salem County, New Jersey. American Antiquity, Vol. 15, No. 4, pp. 315-321. Menasha.

1962 The Wilson Site, Bradford County, Pennsylvania. Pennsylvania Archaeologist, Vol. 32, No. 2, pp. 43-55. Gettysburg.

MICHELS, JOSEPH W., and IRA F. SMITH III

1967 Archaeological Investigations of Sheep Rock Shelter, Huntingdon County, Pennsylvania, 2 Vols. The Pennsylvania State University, University Park.

RITCHIE, WILLIAM A.

1965 The Archaeology of New York State. Natural History Press, Garden City.

1969 The Archaeology of New York State (revised). Natural History Press, Garden City.

RITCHIE, WILLIAM A., and RICHARD S. MACNEISH

1949 The Pre-Iroquoian Pottery of New York State. _American Antiquity_, Vol. 15. No. 2, pp. 97-124. Menasha.

SLATTERY, RICHARD C.

1946 A Prehistoric Indian Site on Seldon Island, Montgomery County, Maryland. _Journal of the Washington Academy of Sciences_, Vol. 36, No. 8, pp. 262-266. Menasha.

SMITH, CARLYLE S.

1950 The Archaeology of Coastal New York. _Anthropological Papers of the American Museum of Natural History_. Vo. 43, Pt. 2. New York

SMITH, IRA F., III

1970a Early and Middle Woodland Cultures in the Susquehanna Valley. MS, Master's Thesis, The Pennsylvania State University, University Park.

1970b Schultz Site Settlement Patterns and External Relations: A Preliminary Discussion and Possible Interpretation. _New York State Archaeological Association, Bulletin_ No. 50, pp. 27-34. Ann Arbor.

1971 Early Pottery of the Lower Susquehanna Valley: Abstract. In _Proceedings of the Middle Atlantic Archaeological Conference_, edited by Charles W. McNett Jr. and William M. Gardner, pp. 40-41, Washington, D.C.

1973 The Parker Site: A Manifestation of the Wyoming Valley Culture. _Pennsylvania Archaeologist_, Vol. 43, Nos. 3-4, pp. 1-56. Ann Arbor.

1976 A Functional Interpretation of "Keyhole" Structures in the Northeast. _Pennsylvania Archaeologist_, Vol. 46, nos. 1-2, pp. 1-12. Ann Arbor.

1977 _Early and Middle Woodland Campsites on Three Mile Island, Dauphin County, Pennsylvania_. The Pennsylvania Historical and Museum Commission, Harrisburg.

STEPHENSON, ROBERT L., ALICE L. L. FERGUSON, and HENRY G. FERGUSON

1963 The Accokeek Creek Site: A Middle Atlantic Seaboard Culture Sequence. University of Michigan, Museum of Anthropology, Anthropological Papers, No. 20. Ann Arbor.

WISE, CARA L.

1974 A Proposed Early to Middle Woodland Ceramic Sequence for the Delmarva Peninsula. Manuscript, on file with the Delaware Section of Archaeology, Dover.

WITTHOFT, JOHN

1950 Pottery Types of the Lower Susquehanna Valley. Eastern States Archaeological Federation, Bulletin No. 9, pp. 10-11.

1951 Pottery of the West Branch Valley of the Susquehanna River. Eastern States Archaeological Federation, Bulletin No. 10, pp. 7-8.

1954 Pottery from the Stewart Site, Clinton County, Pennsylvania. Pennsylvania Archaeologist, Vol. 24, No. 1, pp. 22-29.

n.d. Ceramic Sequences in Eastern Pennsylvania. Manuscript on file in the William Penn Memorial Museum, Harrisburg.

WITTHOFT, JOHN, and S. S. FARVER

1952 Two Shenks Ferry Sites in Lebanon County, Pennsylvania. Pennsylvania Archaeologist, Vol. 22, No. 1, pp. 3-32. Milton.